Journal of Physics: Conference Series 2014 vol.567 N1

Impact of Basset force on threshold values of particle drag coefficient and density parameter in standing sinusoidal wave

Gubaidullin D., Osipov P., Zakirov A.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© Published under licence by IOP Publishing Ltd. A one-dimensional drift of spherical particle in standing sinusoidal wave is studied numerically. The impact of stationary and non-stationary forces of viscous drag, as well as Archimedes, added masses and Basset forces on particle drift direction is investigated. For various Reynolds and Strouhal numbers the dependencies of the threshold particle drag coefficient on density parameter have been found. These dependencies show that with increasing Reynolds and Strouhal numbers the threshold value of the squared drag coefficient decreases markedly. Impact of Basset force on threshold values is especially strong for low- density particles.

http://dx.doi.org/10.1088/1742-6596/567/1/012018